



*Ministero dei Trasporti  
e della Navigazione*

UNITÀ DI GESTIONE  
MOTORIZZAZIONE E SICUREZZA DEL TRASPORTO TERRESTRE  
- MOT 2 -

**Rome, 9/3/2000**

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**IHRA Working Group on Advanced Offset Frontal Crash Protection.**

Please find here enclosed the minutes of the seventh meeting of the Working Group, held in Madrid on the 3<sup>rd</sup> of February 2000.

Sincerely yours,

Claudio Lomonaco

**INTERNATIONAL HARMONIZED RESEARCH AGENDA (I.H.R.A.)**

**Rome, 9/3/2000**

**STATUS REPORT ON THE ADVANCED OFFSET FRONTAL CRASH PROTECTION GROUP**

**(Based on the results of the meeting held in Madrid on 3rd February 2000)**

**Participants:** C. Lomonaco (Chairman, Ministry of Transport of Italy), R. Lowne (EEVC), A. Lie (EEVC), A Hobbs (IHRA Compatibility), P O'Reilly (IHRA, Compatibility), T. Hollowell (NHTSA), P. Fay (ACEA/OICA), K.Oki (Jama), K.Mizuno(Japan MOT), H.Ohmae (JARI), K.Seyer (Australian DOT), C. Newland (Australian DOT), D.Dalmotas (Crashworthiness Research Division), E. Gianotti (Secretary of the Group).

***DISCUSSION ON THE AGENDA OF THE MEETING***

**1. Extension to vehicle of category N1 (1<sup>st</sup> step)**

No news arose from the members of the group. EEVC has finalized a proposal for the new frontal crash Directive concerning vehicle of N1 class up to 2,5t. Consequently it was agreed to remove this item from the agenda of the next meeting.

**2. Type of barrier (1<sup>st</sup> step – 2<sup>nd</sup> step)**

Chairman: asked the representative from Canada of his views on document AFC-28, concerning the potential common approach on Phase 1 which reports frontal impact test configurations with a rigid block and an offset deformable barrier.

Canada: answered that rigid barrier poses severe test to vehicle (especially with regard to restraint system). Canada has the intention to assess vehicles with all the speeds but only for belted occupants.

Anyway a potential test at 60km/h with ODB will be the first stage of the research.

Remarked that the differences between the canadian and US research is that unbelted tests are not performed in Canada.

NHTSA: announced that further information will be delivered concerning the position of the agency with regard to the doc.n° 28. following the publication of the Rulemaking notice in March

Chairman: announced that he will give information on the conclusion of the last meeting to the steering committee of IHRA (9<sup>th</sup> of march). Conclusion from US and Canada are awaited to be reported to the steering committee.

EEVC: advocated a discussion on a combined proposal for a frontal test in collaboration with compatibility, in order to not perform two different tests (compatibility/frontal crash).

**Conclusion**

The group revised doc.AFC – 28a (attached to this letter) and agreed in adopting it as a first step. For the second step conclusion from the group of compatibility are awaited.

### **3. Impact speed (1<sup>st</sup> – 2<sup>nd</sup> step)**

NHTSA: confirmed the position of the last time:

With respect to the goal of improving protection, NHTSA is proposing to adopt one of the following alternative crash tests to evaluate the protection of unbelted occupants in moderate to high speed crashes, i.e., those that are potentially fatal. One alternative is an unbelted rigid barrier test (perpendicular and up to  $\pm 30$  degrees oblique to perpendicular) with a maximum speed to be established in the final rule within the range of 40 to 48 km/h (25 to 30 mph). If the maximum speed will be reduced to 40km/h (25mph) permanently, it might also increase the maximum speed of the belted rigid barrier test from the current 48km/h to 56 km/h (30 to 35 mph). Another alternative is an unbelted offset deformable barrier test with a maximum speed to be established in the final rule within the range of 48 to 56km/h (30 to 35 mph). The vehicle would have to meet the requirements both in tests with the driver side of the vehicle engaged with the barrier and in tests with the passenger side engaged.

EEVC: confirmed the last position too:

The impact speed of 65km/h seems to be the solution much more devoted to self protection of vehicles, based on accident analyses. On the other hand, there is some concern that this value could lead to stiffer cars. As a consequence EEVC has concerns for compatibility. Therefore a 60km/h test should be more advisable in absence of extra data. When further clues will be available, 65km/h would be reconsidered.

Australia: has the same position of EEVC.

Japan: confirmed his point of view that decision on test speed depends on weight of vehicles, and declared his intention to improve statistical analysis. Also Japan stated that an increased test speed would affect compatibility.

### **4. Performance criteria (1<sup>st</sup>-2<sup>nd</sup> step)**

NHTSA: the concept of neck criteria based on a linear combination of loads and moments, including the four major classifications of combined neck loading modes, was classified as Nij. (this was presented in NHTSA's report on child injury protection in 1996). Now, in developing Nij criteria, information produced in crash tests using dummies, and the significance of that information are considered. The latest news on this item indicate that evaluations using the recently updated Nij are not so different than those from using individual loads and moments (as proposed by the automakers in their comments to the agency's proposal). Consequently, the agency likely will keep Nij in its final rule.

EEVC: helped the group in amending doc.22a, whose last version is attached to this minute. EEVC suggested after this last revision to circulate the document to the IHRA biomechanic group.

Canada: said that the neck criterion issue, especially with regard to torsion/loading, is considered relevant in their studies, anyway in term of data they are very scanty. Conclusion on torsion and compression of the neck are awaited.

### **5. Air-Bag performance (1<sup>st</sup> – 2<sup>nd</sup> step)**

NHTSA: is more inclined to use a different indicator than CTI for evaluating Air-Bag performance. In the SNPRM, with the goal of minimizing the risks of air-bags in low speed crashes, the agency again proposed performance requirements to ensure that future air-bags do not pose unreasonable

risk of serious injury to out-of-position occupants. NHTSA again proposed to adopt a number of options for complying with those requirements so that vehicle manufacturers would be free to choose from a variety of effective technological solutions and to develop new ones if they so desire. With this flexibility, they could use technologies that modulate or otherwise control air bag deployment so deploying air bags do not cause serious injuries, technologies that prevent air bag deployment if children or out-of-position occupants are present, or a combination thereof.

Japan: reported that for the time being they have no data on this item.

Conclusion: the group agreed to delete this item from the agenda, being no news on the discussion.

## **6. Impact angle (2<sup>nd</sup> step)**

It was agreed that this item will be part of the discussion of the second step. As a consequence the item is suspended until the first step will be finalized.

## **7. Trolley (2<sup>nd</sup> step)**

No news arose for this item, accordingly it is suspended from the agenda.

## **8. Compatibility**

NHTSA: reported that a first priority was given as a first step concerning self protection with a MDB test, subsequently a compatibility test will be designed as a second priority. However, if the full overlap rigid impact test can be developed in association with the test being considered by the Compatibility group without a delay in the proposals from the Frontal group, then this would be seen as advantageous.

## **9. Comparative analysis method**

NHTSA: reported comments to doc.AFC-29 “Response to Review of Potential Test Procedure for FMVSS No.208”.

Further comments did not come out from the group.

## **10. Collateral effect of Air-Bag explosion**

The item is postponed awaiting discussion that are in progress in Geneva by UN/ECE/GRSP.

## **Constitution.**

Mr Lowne announced that this would be his last attendance at the IHRA Frontal WG as he would be stepping down as chairman of the EEVC WG on Frontal impacts. A new representative would be present at the next IHRA WG meeting.

## **Conclusion**

A next meeting in London has been tentatively agreed on 16<sup>th</sup> of June.

**List of documents distributed so far .**

- **IHRA/afc-1-Development of a Frontal Offset Crash Test Procedure (B. Park,R. Morgan, J. Lowrie)**
- **IHRA/afc-1a-Occupant Injury Protection Values for Frontal Impact Based on Dummy Measurements.**
- **IHRA/afc-2-NHTSA's Development of a Frontal Offset Test Procedure Based on Crash Data (S.L.Stucki).**
- **IHRA/afc-3-Report of IHRA Activities WG on Advanced Offset Frontal Protection (R. Lowne).**
- **IHRA/afc-4-EURO NCAP crash test programme**
- **IHRA/afc-5-Road traffic Accident in JAPAN.**
- **IHRA/afc-6-AIR-BAG Aggressiveness Study (D.J. Dalmotas).**
- **IHRA/afc-7-Proposed Test Matrix for 1998 Frontal Offset Program – Office of Crashworthiness Standards (B.Park, R.Morgan & J.Lowrie)**
- **IHRA/AFC-8-Frontal impact research (K. Seyer).**
- **IHRA/AFC-9-Report on EEVC Activities in Support of IHRA Tasks (R. Lowne)**
- **IHRA/AFC-9a-Trolley Mass for a Mobile Barrier - Car Frontal Offset Impact Test (R. Lowne).**
- **IHRA/AFC-9b-Requirements for Selecting a Frontal Impact Deformable Barrier Face (C.A.Hobbs)**
- **IHRA/AFC-10-Determination of Frontal Offset Test Conditions based on crash data (S. Stucki, W.T.Hollowell)**
- **IHRA/AFC-11- Frontal Offset Crash Test study using 50th percentile male and 5th percentile female dummies (B.T.Park, R.M.Morgan, J.R.Hackney, J. Lee, S. Stucki, J. Lowrie).**
- **IHRA/AFC-11 A (B.T.Park, R.M.Morgan, J.R.Hackney, J. Lee, S. Stucki, J. Lowrie).**
- **IHRA/AFC-12- Offset test procedure development and comparison (C. L. Ragland)**
- **IHRA/AFC-13 Review of Potential Test Procedures for FMVSS No. 208 (S. Stucki, W.T. Hollowell, H.C.Gabler, S. Summers, J.R.Hackney)**
- **IHRA/AFC-14 Development of Improved Injury Criteria for the Assessment of Advanced Automotive Restraint Systems (M.Kleinberger, E.Sun, R. Eppinger, S.Kuppa, R.Saul).**
- **IHRA/AFC-15 Real Conditions of Japanese Road Traffic and Traffic Accident (K. Oki)**
- **IHRA/AFC-16 UN and EU Vehicle Category Definitions**
- **IHRA/AFC-17 Improved Frontal Crash Protection: Passenger Cars and LTV'S**
- **IHRA/AFC-18 Accident Analyses for the Review of the Frontal and Side Impact Directives**
- **IHRA/AFC-19 Australia study on vehicle Nose-Dive.**
- **IHRA/AFC-20 Frontal Offset Crash Test Study Using the 50<sup>th</sup> Percentile Male and 5<sup>th</sup> Percentile Female Dummies**
- **IHRA/AFC-21 Deflection Characteristics of EEVC and ADAC Frontal impact Barriers**
- **IHRA/AFC-22 Injury Assessment R Lowne [EEVC]**
- **IHRA/AFC-22a Revised Injury Assessment (Meeting in Delft) R. Lowne [EEVC]**
- **IHRA/AFC-22b Revised Injury Assessment (Meeting in Madrid) R. Lowne [EEVC]**
- **IHRA/AFC-23 Standard Seating Position for 50<sup>th</sup> Percentile Male Hybrid III (Adrian Lund)**
- **IHRA/AFC-24 Frame and Body characteristics of motor vehicles for carriage of goods (Japan Type Approval Handbook – Safety Regulation).**

- **IHRA/AFC 25 IHRA compatibility group – Main points from discussion of MDB at meeting in S.Diego (28 and 29 ottobre 1999)**
- **IHRA/AFC 26 Fixed vv Mobile Deformable Barrier**
- **IHRA/AFC 27 A new generation of seat belt reminder systems**
- **IHRA/AFC 28 Frontal impact test configurations – Potential common approach phase I.**
- **IHRA/AFC 28a Revised Frontal impact test configurations (Meeting in Madrid) – Potential common approach phase I.**
- **IHRA/AFC 29 Response to review of Potential Test Procedures for FMVSS No.208, sept.1998 by Office of Vehicle Safety Research, NHTSA. (Distributed by e-mail after the meeting).**